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H. McCrory

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF PUBLIC ROADS  
DIVISION OF AGRICULTURAL ENGINEERING

S. H. McCrory, Chief

MONTHLY NEWS LETTER

WASHINGTON, D. C., MAY 19, 1928.

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: THERE IS ENCLOSED A SHEET OF CODEX :  
: PAPER NO. 4117. HERETOFORE WE HAVE USED :  
: THE SMALLER SHEET OF THE SAME RULING. THE :  
: NEW PAPER WILL BE MUCH MORE CONVENIENT FOR :  
: PLOTTING AND WHERE THE WORK IS TO BE RE- :  
: PRODUCED, IT MAY BE DONE BY THE ROTOTYPE :  
: PROCESS, REDUCTION IN SIZE BEING MADE AT :  
: THE SAME TIME. ALL RAINFALL, RUN-OFF, AND :  
: OTHER DAILY DATA SHOULD BE PLOTTED ON THESE :  
: SHEETS HEREAFTER. THE LETTERING ON SHEETS :  
: INTENDED FOR REPRODUCTION SHOULD BE MADE :  
: LARGE ENOUGH TO STAND THE NECESSARY REDUC- :  
: TION. PLEASE SUBMIT A REQUISITION FOR SUCH :  
: SHEETS AS YOU NEED. :  
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: INFORMAL AGREEMENTS COVERING RENTAL :  
: OF GARAGES EXPIRE JUNE 30. PLEASE SEE :  
: THAT NEW ONES ARE EXECUTED AND SUBMITTED :  
: BEFORE THAT DATE. THESE SHOULD COVER THE :  
: PERIOD JULY 1, 1928 TO JUNE 30, 1929. :  
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S. H. McCrory on May 13, left Washington for an inspection and conference trip that will occupy about two weeks. On this trip he will confer with R. B. Gray at Toledo, Ohio, on the corn borer work; with Professor E. W. Lehmann at Urbana, Illinois, with reference to cooperative investigations; with D. G. Miller at St. Paul, Minnesota, on the progress of tile studies; with Professor R. C. Miller at Fargo, North Dakota, in regard to cooperative studies this summer on the combine harvester. Turning south, Mr. McCrory will have a conference with drainage district officials at Norfolk, Nebraska, with regard to the Elkhorn River; from thence he will go to Tallulah, to confer with Messrs. Johnson and Bennett on machinery projects to be inaugurated. Enroute to Washington Mr. McCrory will meet with Professor Nichols of the Alabama Polytechnic Institute, and Professor Lyle at the Georgia State College of Agriculture,







ATHENS, GEORGIA, FOR CONFERENCE ON COOPERATIVE WORK. HIS LAST STOP WILL BE AT RALEIGH, NORTH CAROLINA, FOR A CONFERENCE WITH MR. BARTEL AND WITH COMMISSIONER GRAHAM OF THE NORTH CAROLINA DEPARTMENT OF AGRICULTURE REGARDING 1929 COOPERATION.

L. A. JONES RECENTLY SPENT SEVERAL DAYS IN VERMONT LOOKING OVER THE SITUATION RESULTING FROM THE FLOOD THERE LAST FALL. MR. JONES WAS ACCOMPANIED BY H. H. BENNETT OF THE BUREAU OF CHEMISTRY AND SOILS. THE TRIP WAS MADE AT THE REQUEST OF DIRECTOR OF EXTENSION BRADLEE, FOR THE PURPOSE OF ASSISTING LANDOWNERS IN SOLVING SOME OF THE PROBLEMS ARISING PRINCIPALLY FROM THE DEPOSIT OF SAND AND GRAVEL ON CULTIVABLE LANDS. THE SITUATION IN THIS RESPECT IS, ON SOME FARMS, VERY SERIOUS.

JAMES C. MARR HAS SUBMITTED THE FOLLOWING PRELIMINARY STATEMENT OF THE PROGRESS MADE TO DATE IN ALKALI LAND RECLAMATION EXPERIMENTS IN IDAHO:

"ON THE HELMS TRACT NEAR CALDWELL THE WORK HAS BEEN EXTENDED TO THE EXTENT THAT THE ENTIRE 50 ACRE TRACT WILL BE UNDER CULTIVATION NEXT YEAR, COMPRISING OVER 100 DIFFERENT PLOTS. THE ORIGINAL PLOTS, SERIES A, NOW HAVE THREE YEARS DATA, WHILE SERIES C AND E, THE LAST TO BE PUT IN USE, ARE BEING PREPARED FOR SEEDING.

ALL PLOTS HAVE BEEN SAMPLED EACH YEAR, AND ANALYSES MADE OF THE SOILS. THE RESULTS SHOW THAT THE SALT CONTENT IS DECREASING BY THE CULTURE GIVEN THE PLOTS. THE NORMAL CARBONATE FRACTION - WHICH IS THE MOST HARMFUL - IS DECREASING MORE RAPIDLY THAN THE TOTAL CARBONATE. THIS INDICATES THAT CULTURE, AND PRODUCTION OF SOME CROPS ON THIS LAND, IS CHANGING THE CARBONATE TO BICARBONATE. THIS MAY BE PRODUCED BY TWO MEANS; EITHER BY THE AERATION OF THE SURFACE DUE TO TILLAGE, OR THE PRODUCTION OF  $\text{CO}_2$  BY GROWTH AND DECAY OF PLANTS. THE INFLUENCE OF  $\text{CO}_2$  ON THE CARBONATE EQUILIBRIUM, AND ON PERMEABILITY OF THESE SOILS IS BEING STUDIED IN THE LABORATORY. CARBON DIOXIDE IS BEING BUBBLED THROUGH THE WATER USED FOR LEACHING SOILS IN 18-INCH TUBES. THE  $\text{CO}_2$  TREATED WATER PERCOLATES MORE READILY THAN DOES THE PURE DISTILLED WATER. ANALYSIS WILL BE MADE OF THE RESIDUAL CARBONATES AFTER THIS TREATMENT.

THE EFFECT OF THE CHEMICAL TREATMENTS ON ALKALINITY IS NOT DEFINITE ENOUGH TO BE CONCLUSIVE. THE CHANGE IS SO GREAT FROM PLACE TO PLACE THAT A COMPARISON IS HARD TO MAKE. ANY IMPROVEMENT PRODUCED IS MORE MARKED BY THE PHYSICAL CONDITION OF THE SOIL THAN BY CHEMICAL ANALYSIS.

AN IMPORTANT PROBLEM THAT WE HAVE TO MEET ON THIS TRACT IS THE PHYSICAL CONDITION OF THE SOIL, WHICH RENDERS IT HIGHLY IMPERVIOUS TO WATER PERCOLATION.

A HIGHLY DEFLOCCULATED STRATUM IS ENCOUNTERED IN A LARGE PORTION OF THE TRACT OF A THICKNESS VARYING FROM A FEW INCHES TO TWO FEET, AND LOCATED ANYWHERE FROM THE SURFACE TO A DEPTH OF THREE FEET. THE COLLOIDS ARE SO COMPLETELY DISPERSED IN THIS LAYER AND OF SUCH CONTENT THAT THE PERCOLATION OF WATER IS ALMOST ENTIRELY STOPPED. IN THE LABORATORY, IT HAS TAKEN OVER 30 DAYS FOR 4 INCHES OF WATER TO PERCOLATE THROUGH AN 18 INCH COLUMN, ONE SAMPLE OF THIS SOIL."

W. W. McLAUGHLIN AND PAUL A. EWING SPENT TEN DAYS IN OREGON COMPLETING THEIR INVESTIGATION OF THE AFFAIRS OF THE GRANT'S PASS IRRIGATION DISTRICT, WHICH IS BEING MADE AT THE INVITATION OF THE OREGON STATE RECLAMATION COMMISSION. SEVERAL OTHER OREGON DISTRICTS WHICH ARE HAVING







DIFFICULTY IN MEETING THEIR FINANCIAL OBLIGATIONS ARE TO BE GIVEN SIMILAR STUDY THIS SUMMER.

FRED C. SCOBEEY HAS JUST RETURNED FROM A TRIP TO THE STATE UNIVERSITY AT IOWA CITY, WHERE HE CONFERRED WITH D. L. YARNELL OF THIS DIVISION AND PROFESSORS WOODWARD AND NAGLER OF THE UNIVERSITY. THIS CONFERENCE WAS FOR THE PURPOSE OF RECONCILING APPARENT DIFFERENCES OF OPINION REGARDING CERTAIN FEATURES OF A PUBLICATION ON THE USE OF CURRENT METERS IN TURBULENT WATERS. ON HIS RETURN TRIP MR. SCOBEEY STOPPED IN DENVER TO SEE A LARGE FLUME RECENTLY RECONSTRUCTED FOR THE FARMERS HIGH LINE CANAL. THIS STRUCTURE INCLUDES A CIRCULAR-WALLED INLET DEVELOPED BY THIS DIVISION IN CALIFORNIA. A SECOND STOP WAS MADE AT FORT COLLINS TO DISCUSS WITH MR. PARSHALL AND MR. ROHWER THE CURRENT METER WORK MENTIONED ABOVE.

DURING THE MONTH DEAN W. BLOODGOOD MADE A TRIP OVER THE BLUEWATER PROJECT, NEW MEXICO. ON THIS TRIP HE INSPECTED THE NEW CONCRETE BLUEWATER DAM AS WELL AS THE DISTRIBUTION SYSTEM OF THE PROJECT AND ADVISED RELATIVE TO THE REMODELING OF THE PROJECT, AND RELOCATION OF DITCHES, WITH A VIEW TO ASSISTING IN OBTAINING A HIGHER DUTY OF WATER. A NUMBER OF SOIL SAMPLES FOR MOISTURE EQUIVALENT WORK WERE TAKEN.

R. L. PARSHALL PREPARED A PAPER ON "IRRIGATION IN COLORADO" FOR THE MEETING OF THE SOUTHWESTERN DIVISION OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE RECENTLY HELD AT FLAGSTAFF.

CARL ROHWER REPORTS THAT THE RESULTS OF THE CALIBRATION OF THE 5-FOOT RIVERSIDE WEIR SHOW THAT THE DISCHARGE THROUGH A WEIR OF THIS TYPE IS CONSIDERABLY IN EXCESS OF THE AMOUNT INDICATED BY THE FRANCIS FORMULA. MR. ROHWER ALSO REPORTS THAT CONSIDERABLE DIFFICULTY WAS EXPERIENCED IN MAKING OBSERVATIONS ON EVAPORATION FROM TANKS AND RESERVOIRS DURING APRIL ON ACCOUNT OF THE SNOWSTORMS THAT OCCURRED. IN MAKING THE OBSERVATIONS, IT WAS THOUGHT THAT READINGS AT 7 A.M. AND 7 P.M. WOULD BE SUFFICIENTLY ACCURATE TO OBTAIN THE RESULTS DESIRED, BUT IT WAS FOUND THAT IT WOULD BE NECESSARY TO TAKE READINGS AT NOON ALSO IN ORDER TO OBTAIN ACCURATE METEOROLOGICAL DATA.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED AT THE BERKELEY OFFICE; "LAND CLASSIFICATION OF MUDDY VALLEY, NEVADA," BY ARTHUR A. YOUNG; "APPENDIX TO THE REPORT ON THE AGRICULTURAL AND ECONOMIC PHASES OF THE OCHOCO IRRIGATION DISTRICT", BY A. A. YOUNG AND D. E. STEPHENSON; "PROGRESS REPORT ON THE EVAPORATION FROM FREE WATER SURFACES," BY CARL ROHWER; "PROGRESS REPORT OF COOPERATIVE INVESTIGATIONS CONCERNING THE DRAINAGE OF FINE TEXTURED SOILS OVERLYING ARTESIAN BASINS," BY O. W. ISRAELSEN.

R. B. GRAY, ACCOMPANIED BY SEVERAL OF THE MEN CONNECTED WITH THE CORN BORER STUDY, HAS GONE TO CAMERON COUNTY, TEXAS, TO TRY OUT NEWLY DEVELOPED MACHINERY FOR THE LOW CUTTING OF CORN. CONSIDERABLE WORK HAS BEEN DONE DURING THE WINTER ON THE DEVELOPMENT OF SUITABLE MACHINERY FOR LOW CUTTING AND IT IS BELIEVED AS A RESULT OF THE TESTS IN TEXAS, DEFINITE RECOMMENDATIONS CAN BE MADE FOR THE PRACTICAL USE OF FARMERS NEXT FALL IN THE REGIONS NOW INFESTED WITH THE CORN BORER.



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D. L. YARNELL LEFT HIS HEADQUARTERS, IOWA CITY, MAY 7 FOR A TRIP TO THE EAST DURING WHICH TIME HE WILL MAKE RESEARCHES IN WASHINGTON AND NEW YORK LIBRARIES ON THE SUBJECT OF HIS HYDRAULIC EXPERIMENTS AT THE IOWA STATE UNIVERSITY LABORATORY. HE WILL RETURN TO IOWA CITY ABOUT JUNE 1.

IN CONNECTION WITH THE PREPARATION OF THE LANDCLEARING FILM MENTIONED IN LAST MONTH'S ISSUE, GEORGE R. BOYD IS AT THIS TIME ON THE PACIFIC COAST WITH REPRESENTATIVES OF THE MOTION PICTURE LABORATORY, WHERE A MOTION PICTURE REEL IS BEING MADE OF NORTHWEST LANDCLEARING OPERATIONS INCLUDING THE REMOVAL OF STUMPS BY BURNING, BY EXPLOSIVES, AND BY MACHINERY. ENROUTE TO THE COAST, A SECTION OF FILM WAS TAKEN IN OKLAHOMA SHOWING THE PROGRESS OF THE PROJECT ON HASTENING THE DECAY OF TREES BY THE USE OF POISON. MR. BOYD WILL RETURN EAST ABOUT JUNE 1.

FELIX D. WILLIAMSON OF GEORGIA, HAS BEEN TEMPORARILY APPOINTED TO SUPERVISE THE LANDCLEARING OPERATIONS BEING DONE ON THE BELTSVILLE ANIMAL HUSBANDRY FARM OF THE BUREAU OF ANIMAL INDUSTRY. IT IS THE INTENTION TO KEEP CLOSE COST RECORDS OF THIS WORK ON MEASURED TRACTS TO DETERMINE THE COMPARATIVE COSTS OF CLEARING BY DIFFERENT METHODS.

J. G. SUTTON HAS COMPLETED A NUMBER OF SATISFACTORY TESTS OF THE DRAINAGE PUMPING PLANTS ON WHICH HE IS KEEPING RECORDS. HE REPORTS THE PRESENT INDICATIONS ARE THAT HIGH FLOOD STAGES, SUCH AS CAUSED GREAT DAMAGE LAST YEAR, WILL NOT OCCUR THIS YEAR. P. C. MCGREW, WHO HAS BEEN ASSISTING D. G. MILLER IN THE CONCRETE TILE LABORATORY FOR SEVERAL YEARS, HAS BEEN ASSIGNED TO ASSIST MR. SUTTON.

ON MARCH 19 AND 20 D. G. MILLER ATTENDED A MEETING AT CHICAGO OF COMMITTEE C-6 OF THE AMERICAN SOCIETY FOR TESTING MATERIALS.

M.C. BETTS ATTENDED THE ANNUAL MEETING OF THE NATIONAL FIRE PROTECTION ASSOCIATION ON MAY 7, AT ATLANTIC CITY, NEW JERSEY. AS CHAIRMAN OF A SUB-COMMITTEE OF THE COMMITTEE ON FARM FIRE PROTECTION HE PRESENTED RECOMMENDATIONS RELATIVE TO FIRE PROTECTIVE CONSTRUCTION FOR THE FARM.

DURING APRIL, FINAL SHIPMENTS WERE MADE OF LANDCLEARING PYROTOL. OPERATIONS HAVE BEEN COMPLETED AT ALL PLANTS. A RESUMÉ OF THE OPERATIONS DURING THE LAST SEVEN YEARS SHOWS THAT A TOTAL OF MORE THAN SIXTY-THREE MILLION POUNDS OF EXPLOSIVES HAVE BEEN DELIVERED TO FARMERS. THIS FIGURE PERHAPS IS MORE SIGNIFICANT WHEN REDUCED TO CARLOADS; NAMELY, ABOUT THREE THOUSAND. REVERTING TO THE POPULAR METHOD OF EXPRESSING SUCH FIGURES, THIS IS EQUIVALENT TO A FREIGHT TRAIN ABOUT THIRTY MILES LONG. THE MOVEMENT OF THIS IMMENSE QUANTITY OF EXPLOSIVES HAS BEEN ACCOMPLISHED, SO FAR AS WE HAVE LEARNED, WITHOUT THE LOSS OF A SINGLE CARLOAD, OR ANY PART THEREOF. THIS IS A RECORD WE BELIEVE OF WHICH THE BUREAU CAN JUSTLY BE PROUD.

PREPARATIONS FOR THE ANNUAL MEETING OF THE AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS JUNE 19-22, INCLUSIVE, ARE GOING FORWARD. PROSPECTS NOW ARE THAT THE ATTENDANCE WILL BE LARGER THAN USUAL.



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